

Title (en)  
METHOD FOR IMPROVING AFFINITY OF ANTI-CYTOKINE ANTIBODY FOR ANTIGEN, METHOD FOR PRODUCING ANTI-CYTOKINE ANTIBODY, AND ANTI-CYTOKINE ANTIBODY

Title (de)  
VERFAHREN ZUR VERBESSERUNG DER AFFINITÄT EINES ANTI-ZYTOKIN-ANTIKÖRPERS FÜR ANTIGEN, VERFAHREN ZUR HERSTELLUNG EINES ANTI-ZYTOKIN-ANTIKÖRPERS UND ANTI-ZYTOKIN-ANTIKÖRPER

Title (fr)  
PROCÉDÉ D'AMÉLIORATION DE L'AFFINITÉ D'UN ANTICORPS ANTI-CYTOKINE POUR UN ANTIGÈNE, PROCÉDÉ DE PRODUCTION D'UN ANTICORPS ANTI-CYTOKINE ET ANTICORPS ANTI-CYTOKINE

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Application  
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Priority  
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Abstract (en)  
Disclosed is a method for improving an affinity of an anti-cytokine antibody for an antigen, the method comprising: in an anti-cytokine antibody whose electrical characteristic of complementarity determining regions (CDRs) is negatively charged, changing at least 3 amino acid residues of light chain framework region 3 to arginine residues or lysine residues, thereby improving an affinity for an antigen as compared with that of an antibody before the at least 3 amino acid residues are changed to arginine residues or lysine residues, wherein the at least 3 amino acid residues comprise residues at least 3 positions selected from the group consisting of positions 63, 65, 67, 70 and 72 of a light chain defined by Chothia method.

IPC 8 full level  
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CPC (source: CN EP US)  
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Citation (applicant)  
• US 2018179298 A1 20180628 - MAETA SHINGO [JP], et al  
• WO 2013084371 A1 20130613 - PANASONIC CORP [JP], et al  
• CHOTHIA C.LESK AM.: "Canonical Structures for the Hypervariable Regions of Immunoglobulins.", J MOL BIOL., vol. 196, 1987, pages 901 - 917, XP024010426, DOI: 10.1016/0022-2836(87)90412-8  
• KOHLERMILSTEIN, NATURE, vol. 256, 1975, pages 495 - 497  
• FUKUNAGA A.TSUMOTO K., PROTEIN ENG. DES. SEL., vol. 26, 2013, pages 773 - 780

Citation (search report)  
• [I] EP 3342783 A1 20180704 - SYSMEX CORP [JP]  
• [A] EP 3854808 A1 20210728 - SYSMEX CORP [JP]  
• [A] FUKUNAGA ATSUSHI ET AL: "Improvement of antibody affinity by introduction of basic amino acid residues into the framework region", BIOCHEMISTRY AND BIOPHYSICS REPORTS, vol. 15, 1 September 2018 (2018-09-01), pages 81 - 85, XP055828390, ISSN: 2405-5808, DOI: 10.1016/j.bbrep.2018.07.005  
• [A] A. FUKUNAGA ET AL: "Improving the affinity of an antibody for its antigen via long-range electrostatic interactions", PROTEIN ENGINEERING, DESIGN AND SELECTION, vol. 26, no. 12, 7 November 2013 (2013-11-07), GB, pages 773 - 780, XP055473804, ISSN: 1741-0126, DOI: 10.1093/protein/gzt053

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